

REMARKS

In response to the Office Action mailed June 15, 2004, Applicants respectfully request reconsideration of the Application in view of the foregoing Amendments and the following Remarks. The claims as now presented are believed to be in allowable condition.

Claims 2 and 16 have been canceled, and claims 1, 3, 6, 12, 15, 17, and 20 have been amended. Claims 1, 3-15, and 17-25 remain in this application, of which claims 1, 12, and 15 are independent claims.

Objection to Specification

The paragraph at page 6, lines 22-28 of the specification text has been amended to overcome the Examiner's objection.

Rejection of Claims 1-4, 7-8, 10-18, 21-22, and 24-25 under 35 U.S.C. §102(b)

Claims 1-4, 7-8, 10-18, 21-22, and 24-25 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as "Pickles"). Applicants respectfully traverse this rejection.

Claims 1, 12, and 15 have been amended to recite that the pin of the IC device is coupled to the compression mount lead using *only a lateral* direction of force during a process of coupling the pin to the compression mount lead. Such a lateral direction of force is described and illustrated by the arrow under the actuation plate 216 in Figs. 6 and 7 of the Present Application.

In contrast, referring to Figs. 12, 13, 14, and 15 of Pickles, during the process of coupling the fingers 318 to the contact balls of the IC device 312, the rigid member 306 is moved vertically to the up position in Fig. 13 from the down position in Fig. 12. Thus, during such a *vertical* movement of the rigid member 306, *both vertical* and lateral directions of force are applied on the contact balls of the IC device 312. As a result, Pickles *teaches away* from the

claim limitation of using only a lateral direction of force during the process of coupling the pin of the IC device to the compression mount lead.

The reason for such a difference of directions of force between the Present Application and Pickles arises because Pickles is directed to a BGA (ball grid array) IC package whereas the present invention is directed to an IC package with pin leads (as illustrated in Figs. 5-10 of the Present Application).

Applicants of the Present Application recognized deleterious effects on the more fragile pin and also on the body 106 of the IC device from any vertical force applied on the pin. Thus, only a lateral direction of force is applied on the pin during the process for coupling the pin to the compression mount lead, as recited in amended claims 1, 12, and 15.

In contrast, Pickles touts using the BGA (ball grid array) IC package with the more chunky contact balls. In fact Pickles teaches away from using the pin leads at col. 1, lines 10-17 of Pickles:

....BGA package benefits include compact size, superior signal integrity, and low profile. By contrast with a quad flat package and other surface mount devices, a BGA package does not require a fine lead pitch that is necessary when lead are disposed only about the perimeter of a package. Thus, the BGA package is not subject to the demanding tolerance requirements associated with such fine lead pitch packages.

Thus, Pickles touts using the BGA (ball grid array). Because the contact balls of the BGA package are chunkier, ***both vertical*** and lateral directions of force are applied on the contact balls in Pickles during the process of coupling the fingers 318 to the contact balls of the IC device 312 as the rigid member 306 is moved vertically up and down between the alternating positions of Figs. 12 and 13.

In contrast, referring to Figs. 6 and 7 of the Present Application, the actuation plate 216 is moved only in the lateral direction (as illustrated by the arrow in Figs. 6 and 7 of the Present Application) to in turn apply a force only in the lateral direction against the forking leads 212.

In addition, because Pickles touts using the chunkier contact balls, Pickles is not even remotely concerned with avoiding assertion of any vertical component of force on the fragile thinner pins. Thus, Pickles which teaches away from using the pin leads does not even remotely suggest or motivate avoiding assertion of any vertical component of force on the fragile thinner pins.

Anticipation of a claimed invention requires the presence in a single prior art document of *each and every* element of the properly construed claim. The Federal Circuit has set out the following requirements for anticipation pursuant to 35 U.S.C. §102:

...that a patent claim is anticipated under 35 U.S.C. §102 “must demonstrate, among other things, identity of invention.”...[O]ne who seeks such a finding must show that each element of the claim in issue is found, either expressly or under principles of inherency, in a single prior art reference, or that the claimed invention was previously known or embodied in a single prior art device or practice.

Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1565

(Fed. Cir. 1992).

In addition, claims 1, 12, and 15 originally recited a compression mount lead of the socket that presses against the contact pad of the circuit board. The Examiner cites elements 114 of Fig. 8, 202 of Fig. 11, and 314 of Fig. 12 in Pickles as such a compression mount lead. In addition, the Examiner states that such leads 114, 202, and 314 pressing against a contact pad of the circuit board 102 is inherent.

Applicants respectfully disagree with such a statement that the leads 114, 202, and 314 must inherently press against a contact pad of the circuit board. Rather, Pickles states that the lead 114 is insertion fitted or surface mounted into the circuit board 102 as stated at col. 4, lines 39-61 of Pickles:

In another embodiment shown in Figs. 7-8, a socket assembly 100 for receiving a BGA package and adapted for *insertion* into the circuit board 102 includes a plurality of

spaced sockets 104 fixed in a base member 106, and a substantially rigid member 108 for reshaping the sockets. Each of the plurality of sockets 104 include a receiving portion 110 having a plurality of spaced fingers 112 and a pin portion 114, a part of which extends through the base member 106 for *insertion* into the circuit board 102....It is understood that in other embodiments, the socket assembly fits into other configurations such as *surface mount*, or other package footprints known in the art. (Emphasis added.)

Many times, when the socket lead 114 is insertion fitted into the circuit board 102, the socket lead 114 is soldered or even wire-wrapped for making electrical contact within the circuit board. In addition, surface mount and other package footprints also typically include soldering of the socket lead 114 for making electrical contact within the circuit board.

With such soldering of the socket lead 114, the socket lead 114 would not press against any contact pad. Thus, the socket lead 114 pressing against a contact pad of the circuit board is not at all inherent.

In fact, Pickles nowhere even remotely suggests pressing the compression mount lead against a contact pad of the circuit board. Pickles merely discloses insertion, surface mount, or footprint technology for the socket lead that would typically be soldered to the circuit board.

Because Pickles does not disclose, teach, or suggest all of the limitations of amended claims 1, 12, and 15, the rejection of claims 1, 12, and 15 under 35 U.S.C. §102(b) in view of Pickles should be withdrawn.

Claims 2 and 16 have been canceled.

Claims 3, 4, 7-8, 10, and 11, which depend from and further limit claim 1, are allowable for at least the same reasons that claim 1 is allowable as stated above.

Claims 13 and 14, which depend from and further limit claim 12, are allowable for at least the same reasons that claim 12 is allowable as stated above.

Claims 17, 18, 21-22, and 24-25, which depend from and further limit claim 15, are allowable for at least the same reasons that claim 15 is allowable as stated above.

In addition, claims 3 and 17 have been amended to recite that the actuation plate and the actuation lever are used to assert force directed *only in one* lateral direction against the forking leads during the process of coupling the pin to the compression mount lead.

In contrast, referring to Figs. 1-3, and 12-15 of Pickles, the rigid member 306 forms a ring 322. As the rigid member 306 is moved vertically upward, a force is exerted on the fingers 318 in all 360° of lateral directions as the ring 322 of the rigid member 306 surrounds the fingers 318 in Pickles. Moreover, as the rigid member 306 is moving vertically upward, a force in the vertical direction is also exerted on the fingers 318. Thus, Pickles does not disclose or suggest the limitation of the actuation plate asserting force *only in one* lateral direction against the forking leads during the process of coupling the pin to the compression mount lead.

Rejection of Claims 5 and 19 under 35 U.S.C. §103(a)

Claims 5 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as “Pickles”) in view of Applicants’ Admitted Prior Art (hereafter referred to as “AAPA”). Applicants respectfully traverse this rejection.

The rejection of claims 5 and 19 under 35 U.S.C. §103(a) as being unpatentable over Pickles in view of AAPA is not appropriate because a prima facie case of obviousness cannot be established.

In giving an obviousness rejection, the Examiner bears the initial burden of factually supporting a prima facie conclusion of obviousness. (See, MPEP, §2142). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be *some suggestion or motivation*, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second,

there must be a reasonable expectation of success. Finally, *the prior art references* must teach or suggest *all the claim limitations*. (See, MPEP, §2142.) (Emphasis added.)

The rejection of claims 5 and 19 under 35 U.S.C. §103(a) as being unpatentable over Pickles in view of AAPA is not appropriate because *inter alia* these prior art references fail to teach or suggest all the claim limitations and because there is no motivation or suggestion in these references to combine or modify these references to the present invention.

Claims 5 and 19 recite that the compression mount lead is comprised of a pogo spring. The examiner then just cites the pogo spring shown in Fig. 1 of the Present Application.

However, the Examiner is respectfully directed to the MPEP at §2143 which states that the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient *by itself* to establish prima facie obviousness, and that the mere fact that references *can be* combined or modified does not render the resultant combination or modification obvious *unless the prior art also suggests the desirability of the combination or modification*.

However, Pickles only discloses that the lead 114 is insertion fitted or surface mounted into the circuit board 102 as stated at col. 4, lines 39-61 of Pickles:

In another embodiment shown in Figs. 7-8, a socket assembly 100 for receiving a BGA package and adapted for *insertion* into the circuit board 102 includes a plurality of spaced sockets 104 fixed in a base member 106, and a substantially rigid member 108 for reshaping the sockets. Each of the plurality of sockets 104 include a receiving portion 110 having a plurality of spaced fingers 112 and a pin portion 114, a part of which extends through the base member 106 for *insertion* into the circuit board 102....It is understood that in other embodiments, the socket assembly fits into other configurations such as *surface mount*, or other package footprints known in the art. (Emphasis added.)

Many times, when the socket lead 114 is insertion fitted into the circuit board 102, the socket lead 114 is soldered or even wire-wrapped for making electrical contact within the circuit board.

In addition, surface mount and other package footprints also typically include soldering of the socket lead 114 for making electrical contact within the circuit board.

Thus, Pickles nowhere even remotely suggest or mentions any desirability for compression mounting the socket leads to the contact pads of the circuit board. Implementing the compression mount lead that presses against the contact pads of the circuit board requires added parts for mounting the socket to the circuit board. Thus, one of ordinary skill in the art would not be motivated to incur the extra cost of parts and labor in implementing the compression mount lead that presses against the contact pads of the circuit board.

The AAPA as illustrated in Figs. 1-4 just uses the compression lead without any ZIF opening.

If the Examiner disagrees, the Examiner is respectfully requested to point out *exactly where*, including *specific column(s), line number(s), and/or figure element(s)* in Pickles and/or AAPA, a suggestion or motivation may be found for combining such references.

In addition, the Examiner is respectfully reminded of the MPEP at §2143 which states that the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient *by itself* to establish prima facie obviousness, and that the mere fact that references *can be* combined or modified does not render the resultant combination or modification obvious *unless the prior art also suggests the desirability of the combination or modification*. Accordingly, a prima facie conclusion of obviousness of claims 5 and 19 cannot be established because Pickles and AAPA fail to suggest or motivate all the claim limitations of claims 5 and 19, and the rejection of claims 5 and 19 under 35 U.S.C. §103(a) should be withdrawn.

Rejection of Claims 6 and 20 under 35 U.S.C. §103(a)

Claims 6 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as “Pickles”) in view of U.S. Patent No. 6,558,182 to Ohkita et al. (hereafter referred to as “Ohkita”). Applicants respectfully traverse this rejection.

The rejection of claims 6 and 20 under 35 U.S.C. §103(a) as being unpatentable over Pickles in view of Ohkita is not appropriate because a prima facie case of obviousness cannot be established.

In giving an obviousness rejection, the Examiner bears the initial burden of factually supporting a prima facie conclusion of obviousness. (See, MPEP, §2142). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be *some suggestion or motivation*, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, *the prior art references* must teach or suggest *all the claim limitations*. (See, MPEP, §2142.) (Emphasis added.)

The rejection of claims 6 and 20 under 35 U.S.C. §103(a) as being unpatentable over Pickles in view of Ohkita is not appropriate because *inter alia* these prior art references fail to teach or suggest all the claim limitations and because there is no motivation or suggestion in these references to combine or modify these references to the present invention.

Claims 6 and 19 have been amended to recite that the compression mount lead is comprised of a J-bend lead having a bottom surface that presses against the contact pad of the circuit board. The examiner cites the tail 108 of Ohkita for such a J-bend lead.

Applicants respectfully disagree with such a characterization of the tail 108 of Ohkita. The tail 108 of Ohkita is repeatedly described as a solder pad 108 that is soldered to the circuit board such as at the Abstract, lines 8-10 of Ohkita:

....Each terminal includes a base section retained in each cell and a tail extending beyond the housing for being *soldered* to the circuit board.... (Emphasis added.)

In addition, col. 1, lines 39-43 of Ohkita states:

...Terminals of both types have a base section received and securely retained in the cell of the housing and a tail extending from the base and beyond a lower face of the housing for being *soldered* to the circuit board...(Emphasis added.)

Furthermore, col. 2, lines 44-48 of Ohkita states:

....Each dual-beam terminal comprises a base section received and firmly retained in the corresponding cell and a tail extending from the base section and beyond the housing for being *soldered* to the circuit board....(Emphasis added.)

Additionally, col. 3, lines 34-42 of Ohkita states:

....A tail section 106 extends from a lower edge of the base section 102. The tail section 106 comprises a *solder* pad 108 connected to the lower edge of the base section 102 by a neck portion 109. The neck portion 109 is bent an angle of approximately **90 degrees** whereby a second major surface of the *solder* pad 108 is substantially normal to the first major surface of the base section 102.

The *solder* pad 106 can carry a *solder* ball (not shown) for connecting the terminal 100 to a circuit board (not shown) by Surface Mount Technology (SMT)....(Emphasis added.)

Thus, Ohkita discloses an *L-shaped* (angled 90 degrees) tail section 106 with a solder pad 108 for being soldered to the circuit pad. With such soldering, the solder pad 108 is solder-connected to the circuit board and does not press down onto the circuit board in Ohkita. Thus, the tail section with the solder pad 108 of Ohkita cannot be characterized as a J-bend having a bottom surface that presses against the contact pad of the circuit board

In addition, by repeatedly touting the advantage of the solder pad 108 being soldered to the circuit board, Ohkita teaches away from using a compression mount lead which is completely different from a soldered lead. A solder lead for the socket is permanently attached to the circuit board, whereas a compression mount lead is temporarily attached to the circuit board and is easily detachable from the circuit board.

Accordingly, a prima facie conclusion of obviousness of claims 6 and 20 cannot be established because Pickles and Ohkita fail to suggest or motivate all the claim limitations of claims 6 and 20, and the rejection of claims 6 and 20 under 35 U.S.C. §103(a) should be withdrawn.

Rejection of Claims 9 and 23 under 35 U.S.C. §103(a)

Claims 9 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as “Pickles”). Applicants respectfully traverse this rejection.

The rejection of claims 9 and 23 under 35 U.S.C. §103(a) as being unpatentable over Pickles is not appropriate because a prima facie case of obviousness cannot be established.

In giving an obviousness rejection, the Examiner bears the initial burden of factually supporting a prima facie conclusion of obviousness. (See, MPEP, §2142). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be *some suggestion or motivation*, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, *the prior art references* must teach or suggest *all the claim limitations*. (See, MPEP, §2142.) (Emphasis added.)

The rejection of claims 9 and 23 under 35 U.S.C. §103(a) as being unpatentable over Pickles is not appropriate because *inter alia* Pickles fails to teach or suggest all the claim limitations and because there is no motivation or suggestion in Pickles to be modified to the present invention.

Claims 9 and 23 recite a back plate mounted to a back-side of the circuit board when the socket is mounted to a front-side of the circuit board.

The back plate provides added support for preventing warping of the circuit board and the socket when the socket is compression mounted to the circuit board. However, Pickles nowhere even remotely mentions compression mounting of the socket to the circuit board. Pickles merely discloses through-hole insertion of the socket leads into the circuit board (as illustrated in Fig. 8 of Pickles) or surface mount foot-print technology which typically includes soldering the socket leads to the circuit board, as stated at col. 4, lines 39-61 of Pickles:

In another embodiment shown in Figs. 7-8, a socket assembly 100 for receiving a BGA package and adapted for *insertion* into the circuit board 102 includes a plurality of spaced sockets 104 fixed in a base member 106, and a substantially rigid member 108 for reshaping the sockets. Each of the plurality of sockets 104 include a receiving portion 110 having a plurality of spaced fingers 112 and a pin portion 114, a part of which extends through the base member 106 for *insertion* into the circuit board 102....It is understood that in other embodiments, the socket assembly fits into other configurations such as *surface mount*, or other package footprints known in the art. (Emphasis added.)

Thus, without compression mounting of the socket leads to the circuit board, one of ordinary skill in the art would not be motivated to spend the extra cost and time of adding the extra back-plate to the back-side of the circuit board.

In addition, the Examiner is respectfully directed to the MPEP at §2143 which states that the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient *by itself* to establish prima facie obviousness, and that the mere fact that references

can be combined or modified does not render the resultant combination or modification obvious *unless the prior art also suggests the desirability of the combination or modification.*

If the Examiner disagrees that Pickles fails to suggest or motivate all the limitations of claims 9 and 23, the Examiner is respectfully requested to point out *exactly where*, including *specific column(s), line number(s), and/or figure element(s)* in Pickles such a suggestion or motivation may be found. In particular, Pickles is not at all concerned with warping of the circuit board and socket since compression mount of the socket to the circuit board is not mentioned. Rather, insertion mounting and soldering of the socket leads to the circuit board are disclosed which would not result in warping of the circuit board and socket.

Accordingly, a prima facie conclusion of obviousness of claims 9 and 23 cannot be established because Pickles fails to suggest or motivate all the claim limitations of claims 9 and 23, and the rejection of claims 9 and 23 under 35 U.S.C. §103(a) should be withdrawn.

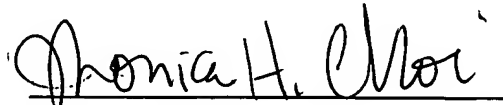
Conclusions

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. Please feel free to contact the undersigned should any questions arise with respect to this case that may be addressed by telephone.

Respectfully submitted,
for the Applicant(s)

Dated: July 2, 2004

By:

A handwritten signature in black ink, appearing to read "Monica H. Choi", written over a horizontal line.

Monica H. Choi
Reg. No. 41,671
Law Office of Monica H. Choi
P.O. Box 3424
Dublin, OH 43016-0204
(614) 789-0240
(614) 789-0241 (Fax)